must be explained in some way, and must be taken into account by those doing basal metabolic work.

SUMMARY.

1. All metabolic rates are probably influenced by sexual gland activity.
2. The menstrual cycle produces a definite metabolic curve in women, the highest point being in the pre-menstrual week.
3. It is possible that the metabolic rate gradually rises during the last months of pregnancy.
4. There may be a metabolic curve in men associated with a possible sexual gland cycle in that sex.
5. We hope that this article may help to point out certain problems which are important in the establishment of accurate normal standards of basal metabolism.

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TICS, AND THEIR TREATMENT*

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My object in presenting to you these studies is three-fold: First, to show the clinical facts connected with the case, which are of themselves of intrinsic value; second, to give the tics their proper place among the motor affections of nervous disease, and third, to study the avenue of approach for their correction.

The word tic has been so misused, and the significance so varied in interpretation, that in the discussion there must be a definite conception of the scope and use of the term.

Tics, then, will be limited in our use to a mental condition which exhibits non-painful motor phenomena outside of the radius of the conscious, consisting of an abrupt momentary muscular contraction, more or less limited, involving the face, neck, trunk or limbs. A pathological habit, the stimulus being ideation, originating in a cortical reflex, whose expression is a motor reaction.

Spasm is most frequently confounded with tic. It consists of the same reaction, from the motor standpoint, but lacks the essential central stimulus in reaction.

CASE REPORT

Harry A., age 23, first studied in 1905, a dentist by occupation.

Father died at 42 of alcoholic nephritis. He was an inmate of a Keeley Institute at three different times and was classed as a dipsomaniac. His mother is 58, and has had migraine since six years of age.

One paternal aunt had spasms—Tic (?); one maternal aunt an epileptic, and another a sufferer from migraine.

Patient's grandfather died at 51 of apoplexy. Two brothers are living. One is 31, a doctor and a drug user. The other is 28 and an apoplectic. Two brothers died in infancy. One sister is living. She is 25, married, and suffers from hysteria.

Our patient had what was accepted as St. Vitus Dance during childhood, and at 12 was "glassed" for a blinking spasms (?).

At 18 he lost the use of his left hand for three months as the result of maintaining himself in the water in an overturned boat for an hour. He graduated in dentistry at 22 and began practice. For about three months previous it was noticed that he turned his head to the right at regular intervals. He explained this as being a movement which he executed in his work at the dental chair. At the time he came under observation the tic had become a fixed habit, appearing about every half hour.

Here, then, is a tic springing from an occupational movement. The patient is unable to concentrate on his work, his will passing from the matter in hand to the movement of his head. Repetition has changed a voluntary act into an automatic habit.

Voluntary movement of the head, reinforced by strict attention to modified Brissand exercises, with re-education, corrected the habit within six months.

He was under observation for a year and then went to a distant city.

During the winter of 1918 he had influenza, with considerable involvement of the throat, and developed a tic of the larynx, which consisted in gurgling noises appaearing with each six or seven inspirations and extended over the time of two normal respiratory periods.

In November, 1919, he again came under observation and he was put on a system of breathing exercises modified from the Brissand. The treatment relieved him and corrected his habit within three months.

The patient has a son eight years old with a (Blephonic) tic.

The case of Harry A. is selected as a prototype because the man is, and has been during his life, in many ways above the average, physically and mentally; hence, in the discussion one is not annoyed by the recurrent thought of degenerative changes, and by response to training he has shown a mental twist, not a mental disease.

The motor part of the tic was originally directed to a definite object, provoked by a definite cause, and the disappearance of this cause does not justify the conclusion that it had not existed.

In my studys of tics during the past twenty years there is no record of their development except upon soil prepared by psychical predisposition. The exciting causes depend entirely on circumstances surrounding the individual and, while one is able as a rule to ascertain the initial cause, yet, owing to the tendency of the subjects to flights of imagination and a fantastic picture of themselves, it is by no means always easy to tell the true from the false.

Tics may occur at any age except infancy. It is the development of the psychical function at about eight years that revelation of its imperfections, if such exist, becomes possible.

Heredity is of common occurrence. To this Charcot attaches the greatest importance. The

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literature abounds with examples. Gintrac's cases, two brothers had similar tics. Blache's patients were three children in the same family. A father and two sons, of whom Latulle has given an account, were blinkers. Meigh and Feindel describe O.s tic and carry it through three generations.

Dissimilar heredity in any form, neuropathic or psychopathic, is no less frequently met with, and emphasizes the association of tic with all the psychoses and neuroses.

It is a matter of general observation for a Tignieur's father to be an alcoholic, his mother neurotic, brother or sister an epileptic or migrain, with grandparents suffering with a neuroses or psychoses.

It is a matter of further observation of tic that in the families mental instability and intellectual superiority have been repeatedly conjoined.

Of the pathological anatomy of tic we have no knowledge. Postmortem examinations of the subject have shown no changes.

Negative findings do not preclude organic changes, and probably further study under different methods will throw some light on the subject; but at present, as with numbers of the neuroses and psychoses, our observations are limited to the symptoms.

Tic, then, is a psycho-motor affection and two inseparable elements unite into its constitution—a mental defect and a motor defect.

The attitude of the mind, which shows the prevailing defect is the will, which takes the form of either volitional debility or volitional versatility, this being characteristic of the mind of a child and, continued for years, shows partially arrested mental development; hence, "infantile" describes the patient's mental state. Speaking generally, a degree of mental instability is the distinguishing feature of a patient suffering from tic.

The motor defect is the result of a motor reaction, the stimulus being an idea. The types of tic are innumerable, depending only on the variation of ideas which can be expressed through the motor apparatus.

In some instances tics are commonly held to be an affection of no moment and again notoriously rebellious to any line of treatment. Either extreme is not fair. As far as life itself is concerned, they are of no menment; but they render its living often intolerable and some degree at least of relief is obtainable. These sufferers should have our attention.

Practically all medicinal agents used in the treatment of nervous and mental diseases have been used in the tics and all have proven their worthlessness. Medicinal, electrical, hydro-therapeutic, surgical and suggestion have all been tried and failed.

In 1851 Blache's use of medicinal gymnastics in abnormal chorea was attended with excellent results; the principle used being the regular execution of given movements by the group affected to the movements of the pendulum of a clock.

This forecasts the modern methods of re-education now so successfully employed to combat tic, which appeals to the intelligence, good sense and will of the patient to provoke an inverse effort at the moment when the tic begins. The credit of establishing treatment by forced immobility is due to Brissand, who, in 1893, devised a method of motor discipline for cases of mental torticollis with most gratifying results. This consisted in a continuation of the discipline of the movements with a discipline of immobilization; the idea being to cause to be performed slow, regular, accurate movements to order, bringing into play the muscles of the area in which the tic is localized and at the same time modifying the activities of all other muscles of the body. All movements should be made before a mirror. It must be borne in mind that the exercises should be graduated, and at no time should the fatigue point be reached. Even the most insignificant gain will rapidly grow, provided the patient's attention is not overtired.

Preceding each drill or exercise a few moments should be devoted to frank and open conference, lucid and sincere explanations, patience, courage and interest on the part of the medical adviser, teaching faith and perseverance on the patient's part. With this course maintained the victim of tic will speedily unlearn his bad habits and, in addition, learn not to take on new bad habits; the result being beneficial, both physically and mentally.

CHRONIC TROCHANTERIC BURSITIS *

By J. K. SWINDT, M. D., Pomona, Cal.

Inflammation of the bursæ, situated about the great trochanter, constitute one of the most commonly overlooked lesions peculiar to this region. Subacromial bursitis, which, of course, is more frequent, has been studied and written about more extensively, has not received the attention of the practitioner which its surgical importance should command. Trochanteric bursitis, being much rarer, is still oftener not thought of until an extensive chronic lesion is present, which may severely tax the surgeon's dexterity and subject the patient to a prolonged invalidism before cure is accomplished.

Bursæ are not stable anatomic structures, only the larger ones being constantly present at birth and many smaller ones developing as the need for them arises in the course of the exigencies of special stress over bony prominences. They do not all conform to one structural type, but present every gradation from simple enlarged areolar spaces with no endothelial lining at all, to definite serous sacs, with distinct synovial-like lining membranes, well-defined fibrous walls and characteristic fluid. The deeper bursæ are more constant and completely developed structurally, while the superficial ones are least so. Of the latter many are adventitious, such as those which develop over a spinal prominence in Pott's disease or over the cuboid in talipes varus. Bursæ, whether normal or adventitious, deep or superficial, when unduly irritated, form bursal cysts or hygromata. All bursæ are liable to injury, acute and chronic in-

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